

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Thomas D. Hanan

Application No.: 10/004,100

Filed: October 31, 2001

For: DISK DRIVE AND METHOD FOR
USING A MAILBOX FILE
ASSOCIATED WITH A DISK
STORAGE MEDIUM FOR
PERFORMING A FUNCTION
CHARACTERIZED BY
CONTENTS OF THE MAILBOX
FILE

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) Group Art Unit: 2186

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) Examiner: TUAN V. THAI

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) Appeal No.: _____

SUBSTITUTE APPEAL BRIEF

Mail Stop APPEAL BRIEF - PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In response to the Notice of Non-Compliant Appeal Brief dated July 20, 2007, this Appeal Brief is being submitted as a Substitute Appeal Brief. This appeal is from the decision of the Primary Examiner dated November 10, 2005, finally rejecting claims 1-24, which are reproduced as the Claims Appendix of this brief.

☐ A check covering the ☐ 250 ☐ 500 Government fee is filed herewith.

☒ This Appeal Fee ☐ 250 ☒ 500 was previously paid May 25, 2006.

The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.

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I. Real Party in Interest

The present application is assigned to Western Digital Ventures, Inc. Western Digital Ventures, Inc. is the real party in interest, and is the assignee of Application No. 10/004,100.

II. Related Appeals and Interferences

The Appellant's legal representative and assignee do not know of any other appeal or interferences which will affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

III. Status of Claims

Claims 1-24 are currently pending in this application and are all rejected. The rejections of all of claims 1-24 are hereby appealed.

IV. Status of Amendments

All Amendments of record have been entered. There are no pending Amendments After Final. The Examiner refused Appellant's request for a personal interview to discuss points raised in an "Interview Agenda" (copy attached as Evidence Appendix).

V. Summary Of Claimed Subject Matter

The present invention is directed to using a mailbox file on a disk storage medium of a disk drive, wherein the mailbox file is executable under control of the disk drive. A command can be responded to by performing a function characterized by contents of the mailbox file.

Appellant's exemplary Figure 1 embodiment illustrates a disk drive 100 that includes a disk storage medium 106. As described in lines 1-3 of paragraph [0018] on specification page 7, at least one of the addressable locations of a first range of host interface addressable locations is used to designate a mailbox file. This portion of the specification describes that a mailbox file is a **functional file** contained on the storage medium of a hard disk drive, the file being **executable under control of the hard disk drive**.

Lines 1-4 of paragraph [0019] on specification pages 8-9, describe that disk controller 112 responds to a command from a host computer operating system that references the mailbox file 120. The disk controller can respond by performing a function characterized by the contents of the mailbox file.

Paragraph [0020] on specification page 9, describes that because the computer hardware internal to disk controller 112 performs the function characterized by the contents of the mailbox file, the speed at which the function is performed is accelerated. Paragraph [0021] describes that the mailbox file 120 can contain any form of computer software code for performing any type of function, and that the mailbox file can, for example, act as a "window" through which the host computer's operating system accesses a second range of addressable locations that are otherwise "hidden" from the disk drive host interface and operating system.

The foregoing features are encompassed by Appellant's independent claims 1 and 12. Claim 1 is directed to a disk drive (e.g., Figure 1, drive 100) which comprises, among other features, a disk storage medium (e.g., disk medium 106). The disk storage medium has a first range of disk drive host interface addressable locations (e.g., user partition 110 of disk medium 106; paragraph [0016]) accessible

by a host computer operating system (e.g., host computer 102). At least one of the addressable locations is used to designate a mailbox file (e.g., mailbox file 120) **executable under control of the disk drive** (e.g., paragraph [0018]). Claim 1 also recites a disk controller for responding to the command from the host computer operating system that references the mailbox file to perform a **function characterized by contents of the mailbox file** (e.g., paragraph [0019]).

Claim 12 is directed to a method for accessing storage locations of a disk storage medium in a disk drive using a disk controller. Claim 12 recites that at least one of the addressable locations is used to designate a mailbox file (e.g., Figure 1 mailbox 120; e.g., created using Figure 6, steps 605, 610, 615), **executable under control of the disk drive** (e.g., paragraph [0018]). The claim 12 method recites a step of responding to a command from the host computer operating system by performing a **function characterized by contents of the mailbox file** (e.g., Paragraph [0019], and step 410 of Figure 4).

VI. Grounds of Rejection to be Reviewed on Appeal

A. Independent claims 1 and 12, and dependent claims 2-8, 10-11, 13-17, 22 and 24 have been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,772,281 (commonly assigned to the present assignee Western Digital Corp.) (the Hamlin patent).

B. Claim 9 is rejected under 35 U.S.C. §103 as being unpatentable over Hamlin in view of U.S. Patent No. 6,360,322 (Grawrock).

C. Claims 18-21 and 23 are rejected under 35 U.S.C. §103 as being unpatentable over Hamlin in view of U.S. Patent No. 6,901,481 (Olson).

VII. Argument

- A. The Hamlin patent fails to anticipate each and every element recited in independent claims 1 and 12, such that the rejection under 35 U.S.C. §102(e) is improper

Independent claims 1 and 12 are allowable over commonly assigned U.S. Patent No. 6,772,281 (Hamlin), because the Hamlin patent does not anticipate all features recited in these claims relating to use of a mailbox file. The Hamlin patent does not disclose a file stored on a disk storage medium of a disk drive which is executable under control of the disk drive, or a disk drive that responds to a host command by performing a function characterized by the contents of such a file. The Hamlin patent discloses translating a received read address to achieve a different boot-up process in response to a host request. Neither the file read, nor the translation function executed, constitutes a mailbox file executable under control of a disk drive. Moreover, the disk drive disclosed in the Hamlin patent does not, in response to the received read address, perform a function characterized by contents of a mailbox file.

The Hamlin patent does not anticipate Appellant's claim 1 disk drive which includes, among other features, a mailbox file **executable under control of the disk drive**; and a disk controller that references the mailbox file to perform a **function characterized by contents of the mailbox file**.

In addition, the Hamlin patent fails to anticipate claim 12 which relates to a method that includes, among other features, designating a mailbox file **executable under control of the disk drive**, and responding to a command by performing a **function characterized by contents of the mailbox file**.

The rejection of independent claims 1 and 12 under 35 U.S.C. §102(e) as being anticipated by the Hamlin patent is improper and should be reversed. The Hamlin patent discloses a disk drive. The disk drive is programmed to translate an address received in a host read command. Based on this translation, the disk drive returns data to the host from a different address. The Hamlin patent thus discloses a modified data read from a disk drive.

The Hamlin patent discloses that the read data can include boot sector code. However, the boot sector code of the Hamlin patent does not constitute a file which is **executable under control of the disk drive**, nor does the disk drive perform any function characterized by **contents of the boot sector code**. As such, the boot sector code of the Hamlin patent does not constitute Appellant's claimed "mailbox file", and related features of Appellant's claims 1 and 12.

The portions of the Hamlin patent cited by the Examiner in the final rejection of claims 1 and 12 describe translating a read address to achieve a different boot-up process in response to a particular host request. Portions of the Hamlin patent relied upon in the Final Office Action, such as column 3, lines 1-7 and column 5, lines 39-50 merely describe programming of the disk drive to return a different sector of the disk drive during a boot-up process. The discussion at column 5, lines 48-51 in the Hamlin patent refers to the disk drive asserting autonomous control over the boot process. The disk drive asserts autonomous control over the boot process by substituting another sector's content for an expected boot sector content.

In the Hamlin patent, the original boot sector code requested by the host computer does not constitute a mailbox file that is executable under control of the disk drive, as recited in claim 1. In addition, the disk controller in the Hamlin patent

does not perform a function characterized by contents of the original boot sector requested by the host computer. As such, the disk controller does not respond to a command from the host computer operating system that references a mailbox file that is executable under control of a disk drive, to perform a function characterized by contents of the mailbox file.

Claim 1 is therefore allowable. Independent claim 12 recites features similar to those discussed above with respect to claim 1 and is allowable over the Hamlin patent for similar reasons.

All of the remaining claims 2-11 and 13-24 depend from independent claims 1 and 12 and recite additional advantageous features which further distinguish over the Hamlin patent.

B. The Grawrock patent fails to overcome deficiencies of the Hamlin patent such that the rejection of dependent claim 9 is improper

The Grawrock patent fails to overcome the deficiencies of the Hamlin patent discussed herein with respect to independent claims 1 and 12. The Grawrock patent was cited in a rejection of dependent claim 9 on page 6 of the Final Office Action as disclosing use of a one-time program (OTP) code at column 6, lines 28, 31, 33 and 35. The Grawrock patent, considered alone, or in combination with the Hamlin patent in the manner suggested by the Examiner, fails to teach or suggest a file stored on a disk storage medium of a disk drive which is executable under control of the disk drive to perform a function characterized by contents of the file. As such, dependent claim 9, and independent claims 1 and 12, are allowable.

B. The Olson patent fails to overcome deficiencies of the Hamlin patent such that the rejection of dependent claims 18-21 and 23 is improper

The Olson patent fails to overcome the deficiencies of the Hamlin patent discussed herein with respect to independent claims 1 and 12. The Olson patent was cited in a rejection of dependent claims 18-21 and 23 on page 7 of the Final Office Action as disclosing an application program having a file system for verifying and updating files, with reference to column 7, lines 53-55. The Olson patent considered alone, or in combination with the Hamlin patent in the manner suggested by the Examiner, fails to teach or suggest a file stored on a disk storage medium of a disk drive which is executable under control of the disk drive to perform a function characterized by contents of the file. As such, dependent claims 18-21, and independent claims 1 and 12, are allowable.

CONCLUSION

The Examiner has failed to establish that the Hamlin, Grawrock and Olson patents, considered individually or in the combinations relied upon by the Examiner, teach or suggest all elements of Appellant's independent claims 1 and 12. These claims, along with all claims which depend therefrom, are therefore allowable.

VIII. Claims Appendix

See attached Claims Appendix for a copy of the claims involved in the appeal.

IX. Evidence Appendix

See attached Evidence Appendix for copies of evidence relied upon by Appellant.

X. Related Proceedings Appendix


NONE

Respectfully submitted,

Buchanan Ingersoll PC

Date August 20, 2007

By:

A handwritten signature in black ink, appearing to read 'P. Keane', written over a horizontal line.

Patrick C. Keane
Registration No. 32858

P.O. Box 1404
Alexandria, VA 22313-1404
703.836.6620

VIII. CLAIMS APPENDIX

The Appealed Claims

1. (Previously Presented) A disk drive, comprising:
a disk storage medium having a first range of host interface addressable locations accessible by a host computer operating system, at least one of the addressable locations being used to designate a mailbox file executable under control of the disk drive; and
a disk controller for responding to a command from the host computer operating system that references the mailbox file to perform a function characterized by contents of the mailbox file.
2. (Original) A disk drive according to claim 1, wherein the mailbox file is located in at least one of the disk storage medium and a computer memory associated with the disk controller.
3. (Original) A disk drive according to claim 1, wherein first range of disk drive host interface addressable locations is in a first space directly accessible by the host computer operating system.
4. (Original) A disk drive according to claim 1, wherein the function is used to access a second range of addressable locations used to store information that are not disk drive host interface addressable and that are contained on the disk storage medium.
5. (Presently Presented) A disk drive according to claim 4, wherein the information is written to the second range of addressable locations in an encrypted format.
6. (Original) A disk drive according to claim 4, wherein the disk controller uses a command block contained in the mailbox file for accessing the second range of addressable locations.

7. (Original) A disk drive according to claim 6, wherein the command block is stored in an encrypted format in the mailbox file.

8. (Original) A disk drive according to claim 7, wherein information is written to the second range of addressable locations in an encrypted format.

9. (Original) A disk drive according to claim 1, wherein the function is used to transfer a key from the mailbox file.

10. (Original) A disk drive according to claim 1, wherein the function is used to perform a data transformation.

11. (Original) The disk drive according to claim 1, the disk drive being compatible with at least one operating system that is capable of accessing disk drives and with at least one disk drive host interface.

12. (Previously Presented) A method for accessing storage locations of a disk storage medium in a disk drive using a disk controller, the disk storage medium having a first range of host interface addressable locations accessible by a host computer operating system, at least one of the addressable locations being used to designate a mailbox file executable under control of the disk drive, the method comprising the steps of:

recognizing a command from the host computer operating system as a reference to the mailbox file; and

responding to the command by performing a function characterized by contents of the mailbox file.

13. (Original) A method according to claim 12, wherein the mailbox file is located in at least one of the disk storage medium and a computer memory associated with the disk controller.

14. (Previously Presented) A method according to claim 12, wherein the function is used to access a second range of addressable locations used to store

information that are not host interface addressable and that are contained on the disk storage medium.

15. (Original) A method according to claim 14, comprising the step of:
using a command block contained in the mailbox file for accessing the second range of addressable locations.

16. (Original) A method according to claim 15, wherein the command block is stored in an encrypted format in the mailbox file.

17. (Previously Presented) A method according to claim 16, wherein the information is written in an encrypted format to the second range of addressable locations.

18. (Original) A method according to claim 12, wherein the function comprises the step of:
accessing the second range of addressable locations using a file system of an application program.

19. (Original) A method according to claim 18, wherein the application program writes information in an encrypted format to the disk storage medium.

20. (Original) A method according to claim 14, wherein the step of responding comprises the step of:
transferring information between the mailbox file and the second range of addressable locations.

21. (Original) A method according to claim 20, comprising the step of:
providing an indication in the mailbox file when a transfer of the information is complete.

22. (Original) A method according to claim 20, comprising the step of:
decoding an encrypted command from the application program, within the disk drive, to initiate the step of transferring.

22. (Original) A method according to claim 20, comprising the step of:
decoding an encrypted command from the application program, within the
disk drive, to initiate the step of transferring.

23. (Original) A method according to claim 22, wherein the information is
stored on the disk drive, and transferred between the disk drive and the application
program in an encrypted form.

24. (Original) A method according to claim 12, comprising the step of:
using a command validation key associated with the mailbox file to at least
one of validate and reject the command.

IX. EVIDENCE APPENDIX

The Examiner refused Appellant's request for a personal interview to discuss points raised in an "Interview Agenda"

X. RELATED PROCEEDINGS APPENDIX

NONE